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R. KETCHEM

2,260,715

CIRCUIT CLOSER

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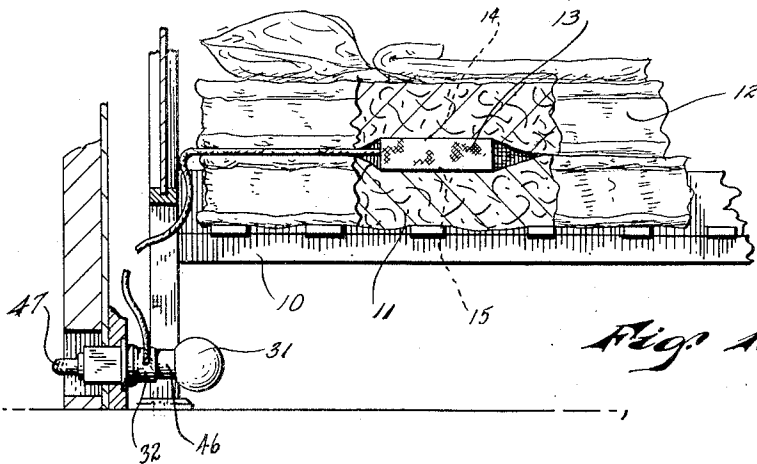


Fig. 1.

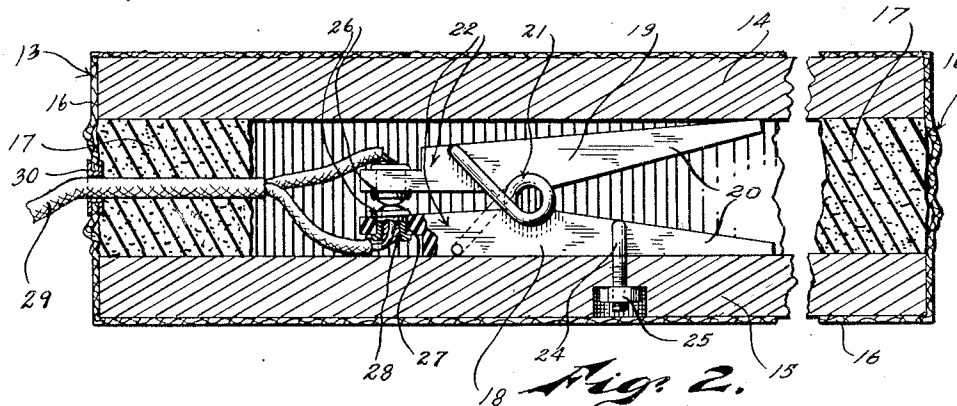


Fig. 2.

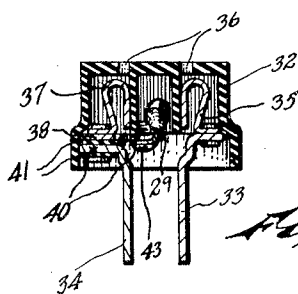


Fig. 4.

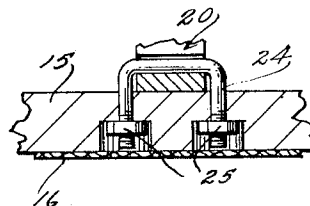


Fig. 3.

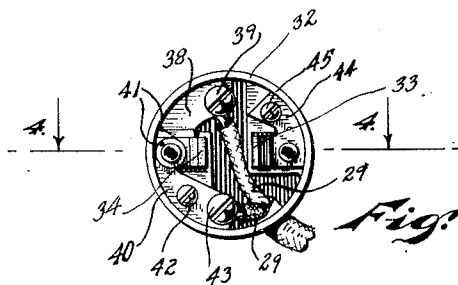


Fig. 5.

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2,260,715

CIRCUIT CLOSER

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1 Claim. (Cl. 200—85)

The invention relates to a circuit closer for illuminating a bed room at night, operative automatically when the occupant arises from bed, to illuminate the room or an area adjacent the bed, sufficiently to enable the person to move about without colliding with articles, furniture and the like, and which will automatically be disconnected from a circuit when the person returns to bed and retires thereon, and for other purposes.

It is a special aim of the invention to present a novel construction in the device operative automatically to control a circuit to an electric lamp. It is an especial aim to present such a device which may be utilized by simply inserting it between the mattress and spring of any ordinary bed.

A further object is to provide a novel construction in a switch device adapted to the use indicated.

A still further object is to provide a novel electrical coupling device adapted to be plugged in to an ordinary electrical outlet, and itself adapted to receive a plug or a lamp, whereby the lamp therein will be controlled by the switch device at a distance, and/or a lamp at any distance from the device may be operated.

Additional objects, advantages and features of invention reside in the construction, arrangement and combination of parts involved in the embodiment of the invention, as will appear from the following description and accompanying drawing, wherein

Figure 1 is a formal fragmentary sectional view of a mattress and spring with my invention incorporated therebetween, and illustrating one installation of a light.

Figure 2 is an enlarged sectional view of my switch unit with parts broken away.

Figure 3 is a fragmentary cross sectional view showing the manner of fastening the switch element between the presser plates.

Figure 4 is a cross section of a special plug-in fixture device for use with my invention.

Figure 5 is an outer end view thereof.

There is illustrated a portion of a bed including a part of the frame 10, and a conventional bed spring 11, upon which a mattress 12 is laid.

Between the mattress and the spring 11 there is laid a switch device 13, which includes a switch element of a normally closed circuit, spring operated, and so arranged that the operating element is yieldable to the weight of a person on the mattress to effect opening thereof. In the present instance, the switch unit comprises upper and

lower right plates or boards 14 and 15, connected around their edges by a flexible closure material 16, which may be rubber impregnated woven fabric of a suitable kind. The boards in the present instance are held in spaced relation so that the fabric 16 is normally held taut, by means of sponge rubber blocks 17 engaged between the boards at each end.

Centrally mounted on the lower board 15, there is a switch device comprising pivoted body members 18—19, having normally divergent operating arms 20, a helical spring 21 being set transversely therebetween in suitable notches formed in the members, and serving as a pivot for the members, the end portions opposite the arms 20 constituting switch jaws 22. Respective arms of the spring 21 are engaged with the jaws 22 so as to press the jaws together normally. One of the arms 20 is secured against the board 15 by means of a staple device 24, the ends of which are inserted through the board and held by nuts 25.

Set in each of the jaws, there are contacts 26, which may be the heads of hollow rivets, the opposite ends of which are upset in suitable recesses 27 formed in the jaw. Respective wires may be inserted in the stem of the rivets and held by solder as at 28, the bodies of the wires being extended outwardly through a grommet or other fitting 30 engaged in one of the blocks 17 and extending through the fabric 16, as shown. The wires 29 are intended to be connected to an electric service outlet in such manner that they will be in series with a lamp 31, and in the present instance, this is attained by providing a plug-in fixture, as shown in Figures 4 and 5, consisting of a body of molded insulating material 32, having two contact tongues 33 and 34 adapted to be inserted in the conventional outlet fixture commonly used in electrical wiring of houses. The tongue 33 has connected thereto a spring contact 35 within the body 32, and the latter is formed with two apertures 36 in its outer side, one aligned with the spring 35, while the other is aligned with a similar spring 37 at the opposite side of the body 32, the opening 36 being so spaced as to readily receive the tongues or blades of any ordinary lead-in plug, which may include a socket adapted to receive the common base of an electric lamp 31, or may have wires led therefrom to a distant lamp receptacle, the latter details not being illustrated.

The spring 37 is connected directly to a plate 38 mounted in the fixture body 32, and to this plate is connected one of the wires 29 of the

switch device 13, by means of a screw 39. The prong 34 is formed integrally on a plate 40 to which the plate 38 is attached by an insulating connection 41 of a common form, and plate 40 is secured in the body 32 by means of the screw 42 in a conventional manner. The remaining wire 29 from the switch 13 is connected to the last mentioned plate by means of the screw 43.

The tongue 33 is formed integrally on a plate 44, which is secured in the body 32 by a screw 45, as shown in Figure 5.

In the present instance, a common lamp receptacle 46 is shown plugged into the fitting 32 in Figure 1, the lamp 31 being engaged in this receptacle so that it will be illuminated while the switch 13 is closed.

It is believed that the use and operation of this device will be readily understood from the foregoing description, the switch device 13 with the plates 14 and 15 being positioned at such location between the mattress 12 and spring 11, that when the occupant of the bed reclines for sleep the switch unit will be located beneath the shoulders of the sleeper. Thereby, the weight of the sleeper will press the upper board 14 toward the lower one 15, operating the arm 20 and separating the contacts 26 so that the series circuit between the lamp 31 and the service line 47 will be interrupted. It will be readily appreciated that as long as the sleeper lies recumbent this circuit will be kept open, and that as soon as the occupant raises himself on an elbow or to a sitting position, the removal of the weight from the board 14 will permit the spring 21 and the swatch of rubber 17 to raise the board 14, the action of the spring 21 closing the jaws 22 so as to bring the contacts 26 together and complete the circuit again.

It will be understood that while I have described with particularity an embodiment of the

invention, this is purely exemplary, and various modifications of the construction, arrangement and function of the parts may be made within the scope of the invention, as more particularly defined by the appended claim.

I claim:

A circuit closer for the purpose described comprising a normally closed switch and yielding means to hold it in closed position, pressure operated members to operate the switch for opening thereof, including broad plates of considerable area adapted to be inserted between a mattress and a mattress support to communicate force from a substantial area of mattress to the switch device, said means for holding the device yieldingly closed being adapted to sustain normal weight of a mattress and objects thereover, but to yield to the weight of a person reclining upon a mattress over said plate, said switch device consisting of two pivoted insulated bodies set between the plates and having divergent portions when the switch is closed, contacting the opposed faces of said plates and adapted to be operated by convergent movement of the plates, said means to hold the switch in closed position consisting of a helical spring set transversely between the switch members and forming a fulcrum therefor, and having opposite arms engaged with respective members to press them together at one side, of the fulcrum, said switch members having contacts in opposed faces to engage at closed position of the members, respective electrical leads therefrom, the opposite end portions of the switch members being divergent when in closed position and coengaged against said plates whereby they will be operated upon convergent movement of the plates, and a flexible material secured about said broad plates, normally held taut by the yielding means.

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